

## Urologic Diseases

## Research Updates

National Kidney and Urologic Diseases Information Clearinghouse

Fall 2005

## Report Compiles First-Ever Comprehensive Look at Urologic Disease

## Five-Year Effort to be Extended in 2006

Four urologic diseases are responsible for more than 13 million doctors visits a year and more than \$6 billion in expenditures, according to the first-ever effort to document the extent and impact of urologic disease in the United States.

The 5-year effort, begun in 2001, is being funded by the National Institute of Diabetes and Digestive and Kidney Disease, or NIDDK. Based on its success, the project is to be continued, with the contract open for recompetition in 2006, ensuring continued compilation and analysis of the data.

The task of gathering data on these conditions is "one of the most important efforts that the NIDDK will undertake at the dawn of the new millennium," according to the report's introduction, written by the publication's editors, Mark Litwin, M.D., M.P.H., and Christopher Saigal, M.D., M.P.H., who are researchers at the University of California-Los Angeles' Jonsson Comprehensive Cancer Center.

The final version of the *Urologic Diseases in America* report will eventually quantify the burden of 12 different conditions; the interim version released last fall tackles four: benign prostatic hyperplasia, or enlarged prostate; urinary incontinence; urolithiasis, also known as bladder stones; and urinary tract infection.

## Focusing the Discussion

Paul Eggers, M.D., the director of the kidney and urology epidemiology program at NIDDK, said the publication follows similar, successful efforts to define the scope of diabetes and kidney disease.

"The urologic communities wanted one of these publications as their own," he said. "It's a high-profile kind of thing that people can use. It focuses the discussion into areas of things we don't know enough about."

He said that the past efforts in renal disease gave researchers and clinicians "a core amount of knowledge that is not debatable," a knowledge base that had been lacking in urology.

## Billions in Spending

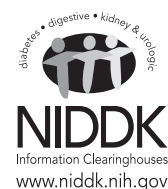
The initial report found that urinary tract infections in adults drive more than 6 million women and 1.4 million men to physicians a year, with a bill for the resulting care of more than \$3.5 billion. More than \$2 billion is spent annually on urolithiasis, a condition responsible for 600,000 emergency room visits a year. And the 100,000 hospital stays a year for patients with benign prostatic hyperplasia generates a bill of more than \$1 billion, not counting money spent on drug therapy.

**REPORT**, continued on page 2



## Inside This Issue

Chang to Head New Office of Women's Urology	3
BACH Study Offers Broad Look at Urologic Diseases	4
New Initiatives Encourage Research Linking Bench, Clinic	6
New Publications from NKUDIC	8



National Institute of  
Diabetes and Digestive  
and Kidney Diseases



REPORT, from page 1

There had been little available data on the extent of urologic diseases, and what information existed was a “scattered, inconsistent, and not readily available” patchwork of government and private surveys, studies, and information systems, according to the report. The *Urologic Diseases*

in *America* effort trolled through those sources, then subjected the findings to three layers of expert peer review.

Improving Data

In addition to compiling the data in each of the nine condition-focused chapters of the interim report, the authors of the report also offer suggestions for ways researchers can improve the available data.

The final version of the report, expected next year, will include details on prenatal hydronephrosis, a condition in which urine outflow is blocked; male reproductive health, including erectile dysfunction; urethral disease; interstitial cystitis and chronic prostatitis; prostate cancer; bladder cancer; kidney cancer; and testis cancer. ■

The Burden of Urologic Disease in America, 2000		
Condition	Office and Outpatient Visits	Expenditures
Urolithiasis	2,682,290	\$2.07 billion
Benign Prostatic Hyperplasia	7,797,781	\$1.10 billion
Urinary Incontinence (female)	2,130,929	\$452.8 million
Urinary Incontinence (male)	not available	\$10.3 million
Urinary Tract Infection (female)	8,966,738	\$2.47 billion
Urinary Tract Infection (male)	2,049,232	\$1.03 billion

Research Updates Gets a New Look, Will Appear More Often

Longtime readers may notice some changes both in the look and content of this issue of *Research Updates*. We have redesigned the publication, putting fresh news from the National Institute of Diabetes and Digestive and Kidney Diseases, or NIDDK, in a new package.

Readers will also be seeing the publication more often. Traditionally published twice a year, we now plan to produce the newsletter quarterly. In addition, we are now publishing two different editions of the newsletter—a kidney version and one focused on urologic diseases.

Our effort to produce the highest quality, most interesting publication requires the help of our readers. If you know of stories *Research Updates* should be chasing or profiles that it should be running, please contact newsletter writer Brian Reid at 703-902-1302. ■

Urologic Diseases  
Research Updates

*Urologic Diseases Research Updates* is published four times a year by the National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC). The newsletter features news about urologic disease, special events, patient and professional meetings, and new publications available from NKUDIC and other organizations.

Subscriptions are free but available only to health professionals. Send subscription inquiries to: National Kidney and Urologic Diseases Information Clearinghouse,

3 Information Way, Bethesda, MD 20892-3580. This publication is available online at: [www.kidney.niddk.nih.gov/about/newsletter.htm](http://www.kidney.niddk.nih.gov/about/newsletter.htm).

Editor: Leroy M. Nyberg Jr., Ph.D., M.D.



Dr. Nyberg is the director of urology and urology centers programs at the National Institute of Diabetes and Digestive and Kidney Diseases, part of the National Institutes of Health in Bethesda, Maryland. Dr. Nyberg is a graduate of Tufts University in Boston, Columbia University in New York, and the University of Massachusetts Medical School in Worcester and completed residency

training in urology at The Johns Hopkins Hospital in Baltimore. He has also held faculty positions in urology at The Johns Hopkins Medical School, in urology and biochemistry at the Medical University of South Carolina, and in urology at the University of Connecticut. Dr. Nyberg received the Distinguished Service Award from the American Urological Association for significant clinical and research contributions to urology. He also received the NIH Directors Award for excellence for the development of urology research programs at NIH.



## Chang to Fill New Position as Director of Women's Urology

### New Post to Increase Awareness, Cooperation in the Field



**W**omen's urology problems are a silent epidemic. Though hundreds of thousands suffer from conditions like urinary incontinence and the pelvic pain of interstitial cystitis, patients are reluctant to talk about them. But that could all be changing with the appointment of Debuene Chang, M.D., the new director of women's urology at the National Institute of Diabetes and Digestive and Kidney Diseases, or NIDDK.

"The priorities are to hear more from the outside world about what we need and to put people in touch with each other."

**Debuene Chang, M.D.**  
Director of women's urology,  
NIDDK

The position is a new one at NIDDK, created in part to help bring new attention to a patient population that has long been a quiet minority in the field of urology.

"These problems have always been there," said Chang. "We're talking very large numbers. But some of the things in this field are not as well studied as they could be, and I would like to see that change."

#### 'A Wealth of Experience'

Her arrival should provide a boost to researchers in women's urology, said Josephine Briggs, M.D., the director of the Division of Kidney, Urologic, and Hematologic Diseases. "Dr. Chang brings a wealth of experience to the position, and we are lucky to have her at NIDDK."

Chang comes to NIDDK from private practice, after first establishing herself as a distinguished clinician at the Department of Veterans Affairs for the Northern California System of Clinics and the Contra Costa County Hospitals. She served both institutions as chief of urology.

A Harvard-educated physician, Chang completed surgical and urological residencies at Boston's Massachusetts General Hospital before moving to California.

#### Connecting Researchers

Though Chang will act as a program director in the Division of Kidney, Urologic, and Hematologic Diseases, her mandate at the outset will go beyond the responsibility of parceling out NIDDK resources. Instead, she said she hopes to function as a hub, linking previously unconnected researchers.

"The priorities are to hear more from the outside world about what we need and to put people in touch with each other," she said. "We want to be the point people to coordinate this."

To help push along collaboration and conversation, Chang said that NIDDK plans to host a series of meetings designed to bring disparate researchers together. Once assembled, Chang said she hopes these doctors and scientists, in collaboration with NIDDK, will begin laying out a research agenda for a field she said is still in its infancy.

"We don't have a preconceived, fixed direction as to where we're going," she said. "This is being defined as we go along, as we are open to what the investigators are going to reveal." ■

## BACH Study to Offer Novel Survey of Urologic Disease Landscape

“Imagine getting a call out of the blue from an unknown group saying that they want to come to your home early in the morning, take 2 or 3 hours of your time, measure your weight and waist, and take a blood sample” is how the investigator describes it.

Can you imagine anyone agreeing to this proposal?

You’d be surprised how many people do.

For more than 3 years, staff from the Boston Area Community Health Survey, or BACH, have fanned out across Boston, knocking on doors in both the posh enclaves and the rougher neighborhoods. They have asked nearly 5,500 people about a range of urologic problems rarely spoken about, much less treated: urinary incontinence, prostate problems, and chronic pelvic pain. And they have collected thousands of blood samples.

“The research will generate 20 to 30 major publications over the next year as the information gathered is put into usable form.”

John McKinlay, Ph.D.  
New England Research  
Institutes

### Shoe Leather Epidemiology

The long months of shoe leather epidemiology are about to pay off for the National Institute of Diabetes and Digestive and Kidney Disease, or NIDDK-supported study conducted by the New England Research Institutes, or NERI. Recruitment ended in April 2005 and investigators are poring over reams of data to deliver the most comprehensive picture yet of urologic and urogynecologic health in America.

“It will provide some of the first prevalence rates and risk factors for urologic problems [that have] ever [been] published,” said John McKinlay, Ph.D., who oversees the survey for NERI. “We don’t even know what the prevalence of interstitial cystitis is. We don’t know what the prevalence is of benign prostatic hyperplasia. We don’t know what obesity means for urinary incontinence.”

The research will generate 20 to 30 major publications over the next year, McKinlay said, as the information gathered is put into usable form. In addition to the data on urologic symptoms, the investigators also recorded medicine and supplement use, which McKinlay said may be another



For more than 3 years, BACH study volunteers made home visits to more than 5,000 Boston-area residents to gather data. Photo courtesy of NERI.

great trove of information on the pharmacoepidemiology of urologic disease. And the biosamples gathered will offer researchers a rich resource for the future as new biomarkers of disease are discovered, he said.

“If some researchers come along and say they have a protein that can identify pelvic pain, we can cost-effectively go to the BACH samples,” he said. “We already have these data on well characterized subjects.”

### ‘Ambitious Project’

“This is a pretty ambitious project,” said John Kusek, Ph.D., who directs urology clinical trials at NIDDK. “It’ll pay off soon and pay off handsomely. As the population ages, many of these urologic conditions will become more prevalent, and it will be nice to know what the risk factors are.”

Kusek and NIDDK colleague Paul Eggers, Ph.D., the program manager for the study, said they will now await—along with much of the urology community—the as-yet-unpublished findings. ■



## NIDDK Begins Test of Antidepressant in Painful Bladder Syndrome

### Research to Probe Amitriptyline's Promise

**T**he National Institute of Diabetes and Digestive and Kidney Diseases, or NIDDK, will spearhead a new study aimed at determining whether a 40-year-old antidepressant can help dull painful bladder syndrome, or PBS, and interstitial cystitis, or IC.

NIDDK is funding a 10-center, 270-patient trial designed to compare outcomes in patients who take as many as 75 milligrams daily of amitriptyline with those who receive only a placebo. Unlike earlier NIDDK trials on IC, the amitriptyline research will enroll only newly diagnosed patients who have not yet received therapy.

Smaller studies have suggested that the drug may help block the nerve signals that trigger pain and can reduce the muscle spasms in the bladder associated with pain and frequent urination. The new study is designed to rigorously evaluate those findings.

#### Crucial Study

"Like so many potential treatments tried before it, amitriptyline looks promising. And we are

desperate to find a safe and effective treatment for patients. But until the drug is rigorously tested, we won't know its true value in these syndromes," said NIDDK's Leroy M. Nyberg Jr., Ph.D., M.D.. "And we'll never know if we are raising false hopes for patients, and unnecessarily spending health care dollars on prescriptions, if we don't do this study. It's critical to base our treatment decisions on evidence."

Amitriptyline is a so-called tricyclic antidepressant. While the drug has been replaced by selective serotonin reuptake inhibitors such as Prozac as a first-line treatment for depression, smaller doses of amitriptyline have been increasingly used for chronic pain syndromes, including fibromyalgia and multiple sclerosis.

#### Treatments Lacking

Researchers are still searching for effective treatments for IC, which affects about 700,000 people, mostly women. PBS, which includes IC, could account for the pain suffered by as many as 10 million people in the United States. Symptoms include frequent urination and pain as the bladder fills. There is no known cause.

In addition to receiving study medication or placebo, all patients will be instructed in ways to suppress the urge to urinate and diet changes that can reduce the level of bladder irritation. Each patient will be followed from 14 to 26 weeks.

In addition to evaluating the potential of amitriptyline to treat the disorder, the researchers will also collect and analyze patient urine samples as part of an ongoing effort to create a diagnostic test for IC. ■

## Campaign Seeks to Raise Awareness on Interstitial Cystitis

Interstitial cystitis, or IC, is a vexing disease. The chronic condition, marked by urinary urgency and pelvic pain, presents like a urinary tract infection, yet no blood or urine test can detect IC and antibiotics do not relieve the symptoms. Many people with IC—most of them women—suffer for years without proper diagnosis or treatment.

But now, an awareness campaign run by the National Institute of Diabetes and Digestive and Kidney Diseases, or NIDDK, seeks to raise awareness among physicians and improve the care for those with IC.

As many as 1 million Americans have the symptoms of IC, and while the condition is poorly understood, treatments designed to give people symptomatic relief are available.

In addition to drawing from the NKUDIC's resources, the awareness drive has also prompted partnerships with professional and advocacy groups, including the Interstitial Cystitis Association and the American Urological Association.

## Seven Initiatives Seek to Bridge Basic, Clinical Research

The National Institute of Diabetes and Digestive and Kidney Diseases, or NIDDK, is pushing to improve the ability of researchers to turn breakthroughs in basic science into new patient treatments and tests, focusing its attention on several initiatives designed to promote this translational research.

The effort to boost translational research follows a high-profile 2003 call to action by participants in the Institute of Medicine's Clinical Research Roundtable. Those researchers, writing in the *Journal of the American Medical Association*, said they were worried that scientific breakthroughs "are failing to be translated efficiently into tangible human benefit."

### Part of NIH 'Roadmap'

The National Institutes of Health, or NIH, has made promotion of such research a centerpiece of its "Roadmap for Medical Research in the 21st Century," and NIDDK will concentrate its resources in seven areas, including better imaging technologies, better animal models, and a more vigorous search for drugs to treat diseases caused by misformed proteins.

"Concrete initiatives are coming out of this," said Allen Spiegel, M.D., director of NIDDK, who said the effort is designed to help fill "valleys of support" in the research spectrum.

Spiegel acknowledged that the move toward more robust translational research at the NIH would require partnerships with industry, such as pharmaceutical companies, which often foots the bill for later-stage research. "If we are to be successful in translational research, we will have to be extremely thoughtful in how we deal with industry." ■

### The Seven Translational Areas

- **Biomarkers:** NIDDK is encouraging researchers to examine new ways to assess disease progression and treatment effects through the use of new tests using blood, tissue, and other samples.
- **Imaging of Solid Abdominal Organs and the Urinary Tract:** Doctors are often frustrated by the lack of reliable noninvasive ways of monitoring digestive, kidney, and urinary health, prompting an effort to find better imaging technology and techniques that will allow physicians a more precise understanding of these diseases.
- **Animal Models:** NIDDK is pushing researchers to work on finding new or improved animal models in an effort to improve the safety and efficacy testing of new therapies that must be done before a treatment is offered to humans.
- **Angiogenesis and Diabetes:** Control of angiogenesis—the process by which the body creates new blood vessels—could lead to better understanding of several complications of diabetes, such as wound healing and nerve damage, and research into this process may improve the outcomes of islet transplant in patients with type 1 diabetes.
- **Preventing Oxidative Stress:** Hyperglycemia, or high blood glucose, often causes a buildup of damaging oxygen molecules in a part of the cell called the mitochondria. NIDDK is encouraging researchers to find new ways to halt that process, and thereby lessen complications from diabetes.
- **New Therapies Targeting Proteins:** Errors in the way proteins are made and used in the body are responsible for a range of diseases; this effort seeks to find molecules capable of stopping those defects.
- **RNA Interference:** NIH would like researchers to realize the promise of therapies that interfere with messenger RNA molecules responsible for disease processes, an early-stage research effort that has generated many unresolved issues.

## Three New Members Join KUH Subcouncil

**T**hree new members have been named to the kidney, urologic, and hematologic subcouncil of the Advisory Council of the National Institute of Diabetes and Digestive and Kidney Disease, or NIDDK. The body serves both to guide the NIDDK's discussion of broad science policy issues and to provide second-level review of funding requests. The new members, who will serve until 2008, are

**Janice Lee Arnold, M.D.:** A Washington, DC-based urologist in private practice, Arnold specializes in the treatment of urinary incontinence and works to boost funding and awareness of prostate cancer. She serves as president of the National Society of Women in Urology.

**William L. Henrich, M.D.:** Henrich is the chairman of the Department of Medicine at the University of Maryland School of Medicine in Baltimore and the Theodore E. Woodward Professor at the school. Henrich is a kidney disease expert who also serves as the physician-in-chief at the University of Maryland Hospital in Baltimore.

**Brian P. Monahan, M.D., FACP:** Monahan is a U.S. Navy Captain and a division director at the F. Edward Hébert School of Medicine at the Uniformed Services University of the Health Sciences in Bethesda, MD. Monahan's research focus is on translational research, hematology, and oncology. ■



Members of the NIDDK staff and the KUH subcouncil meet at an Advisory Council meeting earlier this year. Front row (L-R): Janice L. Arnold, M.D., Monica Liebert, Ph.D., T. Debuene Chang, M.D. Back row (L-R): Stuart S. Howards, M.D., John W. Kusek, Ph.D., Leroy M. Nyberg Jr., Ph.D., M.D., Christopher Mullins, Ph.D., Josephine P. Briggs, M.D., and E. Darracott Vaughan Jr., M.D.. Photo credit: NIDDK.

## Upcoming Meetings from NIDDK and the Division of Kidney, Urologic, and Hematologic Diseases

### Chronic Pelvic Pain/Chronic Prostatitis Scientific Workshop

October 19–21, 2005  
Four Points Sheraton BWI Airport Baltimore, MD

For more information: [www.niddk.nih.gov/fund/other/cpp/index.html](http://www.niddk.nih.gov/fund/other/cpp/index.html)

### National Diabetes and Digestive and Kidney Diseases Advisory Council

February 15–16, 2006  
Natcher Conference Center, Bethesda, MD

For more information: [www.niddk.nih.gov/fund/divisions/DEA/Council/coundesc.htm](http://www.niddk.nih.gov/fund/divisions/DEA/Council/coundesc.htm)

### Urolithiasis Workshop

Spring 2006 (planned)

### Nutrient Sensing and Insulin Signaling

Spring 2006 (planned)

### National Diabetes and Digestive and Kidney Diseases Advisory Council

May 31–June 1, 2006  
Natcher Conference Center, Bethesda, MD

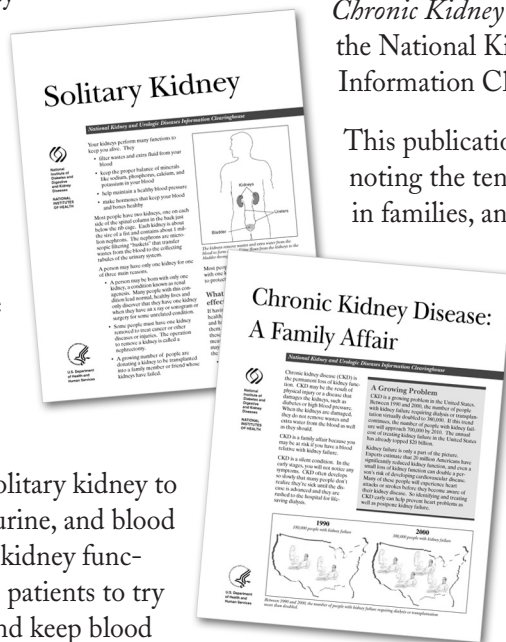
For more information: [www.niddk.nih.gov/fund/divisions/DEA/Council/coundesc.htm](http://www.niddk.nih.gov/fund/divisions/DEA/Council/coundesc.htm)

## Solitary Kidney

People with only one kidney need to be especially attentive to their kidney care, a task addressed by *Solitary Kidney*, a new publication from the National Kidney and Urologic Diseases Information Clearinghouse.

This fact sheet is designed for people who have only one functioning kidney to cleanse their blood, either because they were born with only one kidney, lost one during surgical treatment for cancer or another disease, or donated one.

The publication details the possibility of high blood pressure, excessive protein in the urine, and reduced kidney function, and it encourages patients with solitary kidney to have their blood pressure, urine, and blood assessed annually to check kidney function. It further encourages patients to try to eat right, avoid injury, and keep blood pressure low.



## Chronic Kidney Disease: A Family Affair

Genetics plays a key, though often poorly understood, role in the development of chronic kidney disease. People with a blood relative with kidney disease need to be especially aware of their risk and the importance of screening, which are two of the issues presented in the six-page booklet *Chronic Kidney Disease: A Family Affair* from the National Kidney and Urologic Diseases Information Clearinghouse.

This publication details who is at risk, noting the tendency of the disease to run in families, and highlights the increased risk of certain racial and ethnic groups, among them African Americans, Hispanic Americans, and American Indians and Alaskan Natives. In addition, the booklet covers how doctors can diagnose kidney disease and how, once diagnosed, patients can keep kidney failure at bay. ■

To order additional copies of this newsletter, or to subscribe to future issues of *Research Updates*, please visit the NIDDK Information Clearinghouses' catalog at [www.catalog.niddk.nih.gov](http://www.catalog.niddk.nih.gov).

## National Kidney and Urologic Diseases Information Clearinghouse

3 Information Way  
Bethesda, MD 20892-3580

OFFICIAL BUSINESS  
Penalty for private use, \$300

Presorted Standard Mail  
Postage & Fees Paid  
NIH/NIDDK  
Permit No. G-810